NAME : ASAD SAAD

STUDENT ID# : 15171

DEPARTEMENT : Construction Engineering and Management

FINAL TERM EXAM PAPER

ASSIGNMENT NUMBER 2

**NAME: ASAD SAAD, STUDENT ID# 15171**

Q1:

Answer: **Risk log/ Register:**  A risk register is a tool in risk management and project management. It is used to identify potential risks in a project or an organization, sometimes to fulfill regulatory compliance but mostly to stay on top of potential issues that can derail intended outcomes. The risk register includes all information about each identified risk, such as the nature of that risk, level of risk, who owns it and what are the mitigation measures in place to respond to it.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ID | Date Raised | Risk description | Risk | Without Control | Controls | Residual risk | Action |
| 1) | 16/4/20 | There is a risk that people of specific area won’t allow asphalt road to go through their lands |

|  |  |  |
| --- | --- | --- |
| H | M | L |
|  | Y |  |

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|  |  |  |
| --- | --- | --- |
| Cost impact | Time impact | Other |
|  | It will delay the starting of project work | It may result in judiciary cases  |

 | The Resident Engineer should negotiate with the locals on the matter  | Many people will try to stop the project | Govent written orders should be shown to them |
| 2) | 25/4/20 | Traffic adjustment as no alternative road is available |

|  |  |  |
| --- | --- | --- |
| y |  |  |

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| --- | --- | --- |
| Excavation work disturbance  | Delay in project time |  |

 | Work should be done in time mostly  | More difficult for ambulances to pass in emergency | Precautionary measures should be taken |
| 3) | 05/05/20 | Excavator to touch electric wires above it |

|  |  |  |
| --- | --- | --- |
| y |  |  |

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|  |  |  |
| --- | --- | --- |
| Maintenance cost | Delay of wok | Kill passers by |

 | Pole can be broken  | Excavator operator should take more care |  |
| 4) | 07/05/20 | Risk off weather change |

|  |  |  |
| --- | --- | --- |
|  |  | y |

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|  |  |  |
| --- | --- | --- |
| Increase of cost if work delayed | Delay in work done |  |

 | Force Majeure | Act of GOD |  |
| 5) | 19/05/20 | Not providing necessary equipment |

|  |  |  |
| --- | --- | --- |
| y |  |  |

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|  |  |  |
| --- | --- | --- |
| Labors not working | Day free of progress | Extra cost added |

 |  |  |  |
| 6) | 23/06/20 | No safety sign boards |

|  |  |  |
| --- | --- | --- |
| y |  |  |

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|  |  |  |
| --- | --- | --- |
| Contractor will pay for loss  | Time effected | Safety provided |

 | Sign boards of all kinds should be provided |  |  |
|  |  |  |  |  |  |  |  |

**Q2:
Answer:** Effectiveness of cost benefit analysis for a project:

In 2009 Ergas said that the great effectiveness of CBA lies in its ability to provide increased understanding of the consequences of proposed public programs. It is one means to aid decision makes o making decision for public good. It offers a well-established and tested approach supported by substantial research for identifying, and assessing the physical impacts of assessing the physical impact of different investment options. In addition to estimating their economic values it provides a comprehensive view of programs cost and benefits as well as economic factors that are critical to budget process. CBA provides information on monetary intensity as well as individual’s willingness to make the type of tradeoffs implicates in social investment. The approach to CBA is used to envelope cost estimates for most critical decisions the nation faces. These decisions are used to formulate social policy and budget appropriations for such programs as the war on terrorism, healthcare reforms, the Renewal Energy act, the race to the top education initiative. According to Makowsky and Wagner 2009, this type of trade off often involves exchanging money for social outcomes rather than for other goods and services. Chan 2004 pointed out that monetary results provided by CBA can be expected to contribute to the importance of public affairs by enabling better decisions Example Whenever there are programs alternatives for investments decisions, the CBA increases the rationality of decision making process by providing better information concerning the consequences of these alternative choices CHAN 2004. The core of any CBA is the actual measurement of benefits and the cost of the alternatives being analyzed.
EXAMPLE: A financial technology startup is expending and adding two new programmers. The CEO of the company decides to run a cost benefit analysis to determine whether the decision will be beneficial it the company and to what degree the company is analyzing a time horizon of one year, and estimates that renew would increase some 50% it the programmers were hired. On the cost side of the equation, the CEO must examine the cost of the two programmer’s salaries. Estimated as $75,000 additionally there the cost of recruitment, which might be around $3000. Training could be an additional $4000. The cost of the new work areas and computers, totaling $5000 and additional licensing around $2000. Total direct cost of $89,000 and by calculating benefits they were #110,000 so the value is positive in result that means total benefits are greater than total costs. So the cost benefits analysis indicates the decision to hire two additional programmers would be beneficial more for company.

So the cost benefit analysis is a procedure for estimating all costs involved and possible profits to be derived from a business opportunity or proposal. It takes into account both the qualitative and quantitative factors for analysis of value for money for investment in a particular project.

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**Q: No.3**

 Normal probability distribution:

Normal distribution, also known as the Gaussian distribution, is a probability distribution that is symmetric about the mean, showing that data near the mean are more frequent in occurrence than data far from the mean. In graph form, normal distribution will appear as a bell curve.



**(b)Suppose that the data concerning the first-year salaries of employees is normally distributed with the population mean µ = 60000 PKR and the population standard deviation σ = 15000 PKR. Find the probability of a randomly selected employees earning less than 45000 PKR annually. Hint: To answer this question, you have to find the portion of the area under the normal curve from 45 all the way to the left. Find Z-Score table at the end of the paper (Table 2)**

Ans:

**Given data :**

**mean µ = 60000 PKR---------------1**

**standard deviation σ = 15000 PKR------------------2**

**x≤45,000-------------------------------------3**

**Required:**

**The portion of the area under the normal curve from 45 all the way to the left?**

**Z-Score table at the end of the paper (Table 2)?**

**SOLUTION:**

The natural log of **normally distributed with the population mean µ = 60000 PKR is 11.002** and **standard deviation σ = 15000 PKR** is **9.6158** What is **the probability of a randomly selected employees earning less than 45000 PKR annually** This is a tougher one. First lets find out what the natural log of **15,000**. Its **9.6158**. Next we need the standard deviation of log income. Its **9.6158**.

Now we can form a z score.

Z= (x-u)/ -------------------1

Put value in equ 1

Z=(10.714-11.002)/9.615

=-.03

What is P(Z=-.03)

From table 2 we have **( .51197)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Z** | **.00** | **.01** | **.02** | **.03** | **.04** | **.05** | **.06** | **.07** | **.08** | **.09** |
| **0.0** | .50000 | .50399 | .50798 | .51197 | .51595 | .51994 | .52392 | .52790 | .53188 | .53586 |
| **0.1** | .53983 | .54380 | .54776 | .55172 | .55567 | .55962 | .56356 | .56749 | .57142 | .57535 |
| **0.2** | .57926 | .58317 | .58706 | .59095 | .59483 | .59871 | .60257 | .60642 | .61026 | .61409 |
| **0.3** | .61791 | .62172 | .62552 | .62930 | .63307 | .63683 | .64058 | .64431 | .64803 | .65173 |
| **0.4** | .65542 | .65910 | .66276 | .66640 | .67003 | .67364 | .67724 | .68082 | .68439 | .68793 |
| **0.5** | .69146 | .69497 | .69847 | .70194 | .70540 | .70884 | .71226 | .71566 | .71904 | .72240 |
| **0.6** | .72575 | .72907 | .73237 | .73565 | .73891 | .74215 | .74537 | .74857 | .75175 | .75490 |
| **0.7** | .75804 | .76115 | .76424 | .76730 | .77035 | .77337 | .77637 | .77935 | .78230 | .78524 |
| **0.8** | .78814 | .79103 | .79389 | .79673 | .79955 | .80234 | .80511 | .80785 | .81057 | .81327 |
| **0.9** | .81594 | .81859 | .82121 | .82381 | .82639 | .82894 | .83147 | .83398 | .83646 | .83891 |
| **1.0** | .84134 | .84375 | .84614 | .84849 | .85083 | .85314 | .85543 | .85769 | .85993 | .86214 |
| **1.1** | .86433 | .86650 | .86864 | .87076 | .87286 | .87493 | .87698 | .87900 | .88100 | .88298 |
| **1.2** | .88493 | .88686 | .88877 | .89065 | .89251 | .89435 | .89617 | .89796 | .89973 | .90147 |
| **1.3** | .90320 | .90490 | .90658 | .90824 | .90988 | .91149 | .91309 | .91466 | .91621 | .91774 |
| **1.4** | .91924 | .92073 | .92220 | .92364 | .92507 | .92647 | .92785 | .92922 | .93056 | .93189 |
| **1.5** | .93319 | .93448 | .93574 | .93699 | .93822 | .93943 | .94062 | .94179 | .94295 | .94408 |
| **1.6** | .94520 | .94630 | .94738 | .94845 | .94950 | .95053 | .95154 | .95254 | .95352 | .95449 |
| **1.7** | .95543 | .95637 | .95728 | .95818 | .95907 | .95994 | .96080 | .96164 | .96246 | .96327 |
| **1.8** | .96407 | .96485 | .96562 | .96638 | .96712 | .96784 | .96856 | .96926 | .96995 | .97062 |
| **1.9** | .97128 | .97193 | .97257 | .97320 | .97381 | .97441 | .97500 | .97558 | .97615 | .97670 |
| **2.0** | .97725 | .97778 | .97831 | .97882 | .97932 | .97982 | .98030 | .98077 | .98124 | .98169 |
| **2.1** | .98214 | .98257 | .98300 | .98341 | .98382 | .98422 | .98461 | .98500 | .98537 | .98574 |
| **2.2** | .98610 | .98645 | .98679 | .98713 | .98745 | .98778 | .98809 | .98840 | .98870 | .98899 |
| **2.3** | .98928 | .98956 | .98983 | .99010 | .99036 | .99061 | .99086 | .99111 | .99134 | .99158 |
| **2.4** | .99180 | .99202 | .99224 | .99245 | .99266 | .99286 | .99305 | .99324 | .99343 | .99361 |
| **2.5** | .99379 | .99396 | .99413 | .99430 | .99446 | .99461 | .99477 | .99492 | .99506 | .99520 |
| **2.6** | .99534 | .99547 | .99560 | .99573 | .99585 | .99598 | .99609 | .99621 | .99632 | .99643 |
| **2.7** | .99653 | .99664 | .99674 | .99683 | .99693 | .99702 | .99711 | .99720 | .99728 | .99736 |
| **2.8** | .99744 | .99752 | .99760 | .99767 | .99774 | .99781 | .99788 | .99795 | .99801 | .99807 |
| **2.9** | .99813 | .99819 | .99825 | .99831 | .99836 | .99841 | .99846 | .99851 | .99856 | .99861 |
| **3.0** | .99865 | .99869 | .99874 | .99878 | .99882 | .99886 | .99889 | .99893 | .99896 | .99900 |
| **3.1** | .99903 | .99906 | .99910 | .99913 | .99916 | .99918 | .99921 | .99924 | .99926 | .99929 |
| **3.2** | .99931 | .99934 | .99936 | .99938 | .99940 | .99942 | .99944 | .99946 | .99948 | .99950 |
| **3.3** | .99952 | .99953 | .99955 | .99957 | .99958 | .99960 | .99961 | .99962 | .99964 | .99965 |
| **3.4** | .99966 | .99968 | .99969 | .99970 | .99971 | .99972 | .99973 | .99974 | .99975 | .99976 |
| **3.5** | .99977 | .99978 | .99978 | .99979 | .99980 | .99981 | .99981 | .99982 | .99983 | .99983 |
| **3.6** | .99984 | .99985 | .99985 | .99986 | .99986 | .99987 | .99987 | .99988 | .99988 | .99989 |
| **3.7** | .99989 | .99990 | .99990 | .99990 | .99991 | .99991 | .99992 | .99992 | .99992 | .99992 |
| **3.8** | .99993 | .99993 | .99993 | .99994 | .99994 | .99994 | .99994 | .99995 | .99995 | .99995 |
| **3.9** | .99995 | .99995 | .99996 | .99996 | .99996 | .99996 | .99996 | .99996 | .99997 | .99997 |

THIS IS JUST

1-P(Z<.03) = 1-F(.03)= **1- .51197=.48803**